MIKE FLOOD Toolbox

User Guide

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LEVEE BREACH GENERATION

The Levee Breach Generation is a tool for the creation of time varying levees. By supplying a number of parameters defining the geometry of the levee breach a time varying line series is created which may be used as input to the MIKE FLOOD model.

1 Levee Breach Generation

The information provided in the present Dialog Overview is related, specifically, to the use of the MIKE FLOOD Tool for levee branch generation. The levee breach generation tool may be used to construct a temporal varying levee along a lateral link in MIKE FLOOD. The levee breach generator produces a line series file (dfs1) describing the levee breach geometry for a trapezoidal shaped breach. The levee is assumed to have the same levee height along the link prior to breach initiation. If a more complex geometry is required the dfs1 editor may be used to generate the levee breach file.

The instantaneous breach geometry is described through a number of parameters as detailed below.
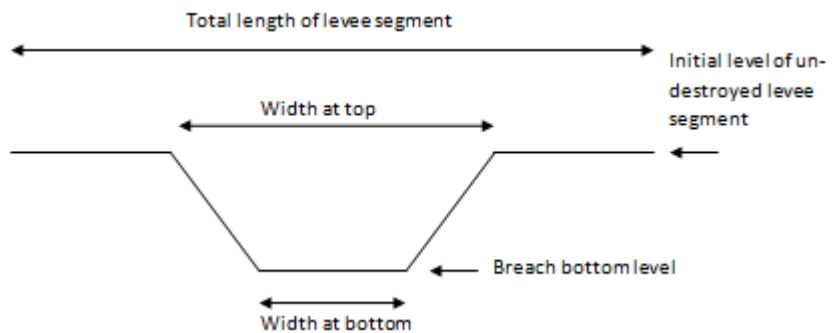

Figure 1.1   The geometry of the breach

The Levee Breach Generation tool is part of the Hydrodynamics tools of the MIKE FLOOD Toolbox. The tool is organised logically following the order of the dialog pages.

1.1 Time Independent Parameters

Two parameters are to be supplied on this page:

- The level of the undestroyed levee segment
- The total length of the segment

The breach will be placed symmetrically within the given segment.

Figure 1.2   Definition of Time Independent Parameters

1.2   Time Dependent Parameters

On this page the temporal development of the levee breach is supplied.

Figure 1.3   Definition of Time Dependent Parameters

The breach geometry is given at certain times relative to the time of the initiation of the breach. The relative time of the initial breach may be supplied as the "Time before breach initiates". All time inputs are given in seconds.

The remaining parameters (all in meters) are:

- Width at top
- Width at bottom
- Breach bottom level

These parameters must be supplied in a tabular form as a function of the time. The latter specified in seconds. Please not that the time span of the file does not need to cover the full simulation period. Since MIKE FLOOD simply re-uses the final time step beyond the dfs1 files time span for the rest of the simulation period.

The tools above to the right of the table may be used for:

- inserting lines above or below current line
- deleting a line in the table
- reordering the lines in the table

1.3   Output Specification

The output file name and location must be specified along with the resolution to be used in the direction along the levee segment. Finally the time step may also be supplied. Though the latter is of less importance since MIKE FLOOD uses linear interpolation in time when needed.

A subdivision of the levee segment length in the same order as the grid/mesh is recommended.

Figure 1.4   Specification of the output dfs1 file

1.4 Overview

The overview page presents a summary of all the input parameters you have specified. You should inspect that the parameters are correct and if not go back and change them.
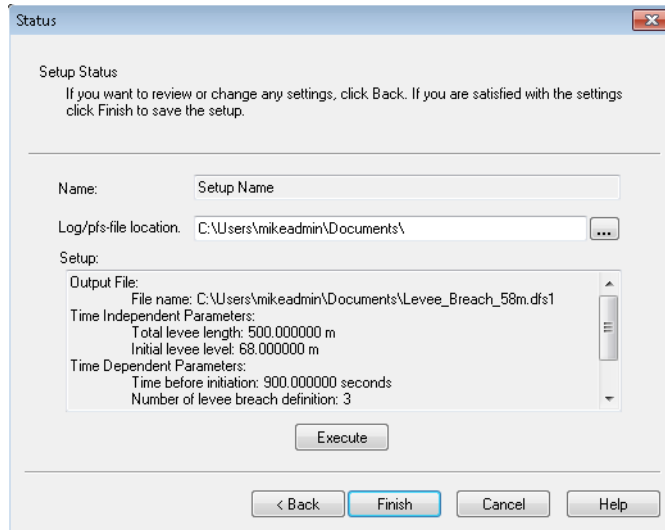

Figure 1.5 Reviewing your input parameters before executing the task and finishing

From the page you can either *Finish* the setup which will transfer your setup definition to the current tool box file or execute the setup.

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